

## REMARKS

Favorable reconsideration of the above-identified application is requested in view of the amendments made herein and the following remarks.

Claims 10-20 are newly added. Thus, Claims 1-20 are pending in this application, with Claims 1, 10 and 18 being independent.

The Official Action raises some formal issues with regard to Claims 1, 2, 4, 8 and 9. Those claims are amended thereby addressing the issues.

The Official Action rejects Claims 1-9 under 35 U.S.C. § 103(a) as being unpatentable over Japanese Published Application 2001-093551, hereinafter referred to as the '551 document, in view of U.S. Patent No. 5,432,123 to Yamada et al., hereinafter referred to as *Yamada*.

Claim 1 is directed to a direct methanol fuel cell including a multiple number of connected unit cells. Each of the unit cells is composed of a fuel electrode element of a microporous carbon material, an electrolyte layer that is formed on an outer surface of the fuel electrode element, and an air electrode layer that is formed on an outer surface of the electrolyte layer. Each unit cell is connected to a fuel feeder having an infiltration structure and coupled with a fuel reservoir for storing liquid fuel, so as to supply liquid fuel thereto.

The primary reference is the '551 document. The '551 document discloses a methanol fuel cell having a container 1 that holds methanol. A tube 3 connects the container 1 to the body 2 that includes a cell, and operates by capillary action. The cell in the '551 document includes an evaporating plate a, an anode b, an electrolyte membrane c, a cathode d, a gas channel e, and a separator f that are arranged between two liquid osmosis plates g. Osmosis material 8 is included in the container

1 and delivers the liquid fuel to the tube 3 for capillary delivery through the tube 3 to the cell body 2.

The Official Action recognizes that the '551 document does not disclose the unit cell as claimed or the microporous carbon material. That is, the '551 document does not disclose a unit cell that is composed of a fuel electrode element of a ***microporous carbon material***, an electrolyte layer formed on the outer surface of the fuel electrode element, and an air electrode layer formed on the outer surface of the electrolyte layer. For a disclosure of that claimed subject matter, *Yamada* is relied upon.

The Examiner identified column 15, lines 12-23 in *Yamada* as providing a disclosure of the microporous carbon material recited in Claim 1. However, that portion of *Yamada* only discloses "conductive porous material" and not microporous carbon material. In fact, upon review of *Yamada* in its entirety, Applicants find that there is ***no disclosure of microporous carbon material***. Therefore, for at least that reason, the rejection of Claim 1 must be withdrawn. Should the rejection be maintained, it is requested that it be explained how conductive porous material is being interpreted as disclosing microporous carbon material.

Claims 10 and 18 are newly added and introduce the idea that the fuel reservoir has an occluding element that is for absorbing a liquid fuel filling an area within the fuel reservoir so that any fuel in the reservoir will be in contact with the occluding element in any orientation of the reservoir, the occluding element being formed of a porous material and/or bundled fibers representing capillarity.

That subject matter is not disclosed or suggested by the cited documents. For example, Figure 1 in the '551 document shows a liquid fuel vessel 1 that is

partially filled with liquid osmosis material 8 and Figure 23 in *Yamada* shows a wick made of fibers 34 that is directly adjacent to, and in fluid communication with, the fuel storing space 40. Those two configurations have many orientations where fuel may not be in contact with an occluding element.

Dependent Claims 2-9, 11-17, 19 and 20 are allowable at least by virtue of their dependence from allowable independent claims.

For at least the reasons stated above, it is believed that this application is in condition for allowance and that all the objections and rejections should be withdrawn.


Should any questions arise in connection with this application, or should the Examiner feel that a teleconference with the undersigned would be helpful in resolving any issues, the undersigned requests that he be contacted at the number indicated below.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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